

Ardagh Group

Environmental record and stewardship plan

At a little-known manufacturing facility in South Seattle, about 350 people proudly work together to make about a million glass bottles a day for the Pacific Northwest wine industry and beyond. These experts in glass manufacturing are committed to making a quality product. In some cases, their commitment dates back generations at a plant that has been in operation for nearly 100 years.

But this essential piece of Seattle's manufacturing legacy and the family-wage jobs of 350 people are at risk. If Ardagh, the company that has owned the Seattle plant since 2014, fails to secure a lease with King County, it will lose land that is critical to its operations.

Ardagh currently operates well within the emission limits set by its air quality permit. However, a competitive leasing process launched by King County has focused attention on the Seattle plant's environmental record and increased interest in the company's commitment to environmental stewardship. Based on community engagement and meetings with King County leaders, Ardagh understands that it must show its commitment to local values — values such

Investing in the environment to invest in Seattle's manufacturing legacy

Ardagh is committed to continuing to work cooperatively with county leaders and is committed to making a significant investment in the environment at its South Seattle site if it secures a renewed lease with King County. Ardagh would accelerate the rebuild of its oldest furnace to complete it in the first five years of the new lease. The rebuild would include more than \$10 million in advanced environmental technology to control air pollution. This investment would be in addition to the estimated \$15 million to rebuild the furnace to meet minimum requirements for a total investment of approximately \$25 million. Ardagh believes this offer demonstrates its understanding of and commitment to the environment and community values.

as preserving and protecting the environment and preserving and protecting manufacturing.¹

In response to the community and King County leaders' interests, Ardagh will invest heavily in environmental improvements at its Seattle plant that go well beyond regulatory requirements if it secures a renewed lease.

Ardagh is also committed to continuing to work cooperatively with regulators, and to improving the transparency with which the company communicates with the community about the Seattle plant, its employees and its environmental record. This paper is a first step toward improving transparency and demonstrating that the company is responsive to the community's interests.

Investing in a cleaner future

For Ardagh Group, the privilege of doing business in Seattle comes with a sense of responsibility that extends beyond permit compliance to a companywide ethic of environmental stewardship.

With a history that dates back to 1932, Ardagh is an expert in the complex processes needed to manufacture high-quality, 100 percent and infinitely recyclable products. Ardagh endeavors to apply that expertise to minimizing its impact on the planet because a clean and efficient operation is also good for business.

¹ The King County Comprehensive Plan, updated October 29, 2018, calls out the importance of preserving industrial and manufacturing properties: "King County shall encourage redevelopment of and reinvestment in industrial and manufacturing properties by collaborating with other jurisdictions and the private sector to remove, revise, or streamline regulatory or other redevelopment barriers without compromising environmental standards or quality. This includes assessment and/or remediation of contaminated properties" (ED 204, page 10-8).

Since purchasing the Seattle plant in 2014, Ardagh has made significant progress in bringing the facility up to the high environmental standards Ardagh prides itself on, and that is a high priority for King County.

Manufacturing facility in industrial South Seattle

Ardagh's Seattle plant is located in the industrial zone of Seattle's lower Duwamish Valley. During the course of its nearly 100 years in operation, other industries and residential communities have grown up around it.

The company owns about 13 acres, where it houses all of its manufacturing equipment, including the three furnaces it currently operates to make glass containers. The plant produces about a million high-quality glass containers per day, primarily bottles for Pacific Northwest wine producers. It is the largest supplier of bottles for Chateau Ste. Michelle.

King County has launched a competitive process for the lease of an adjacent 17-acre parcel, most of which it has leased to the glass plant for more than 50 years. The leased property houses 85 percent of the glass plant's on-site storage of finished bottles, and it is home to two of Ardagh's subtenants that supply the core raw materials to the plant's glass manufacturing process: Strategic Materials Inc. (SMI) and J.A. Jack & Sons, which supply the plant with recycled glass and limestone, respectively.

The leased property is critical to the glass plant's overall operations. The proximity of its finished goods inventory and key suppliers helps keep a competitive cost base against foreign imports, mainly from China, and, from an environmental perspective, reduces emissions from transportation.

Ardagh shuts down oldest furnace, yielding environmental benefit

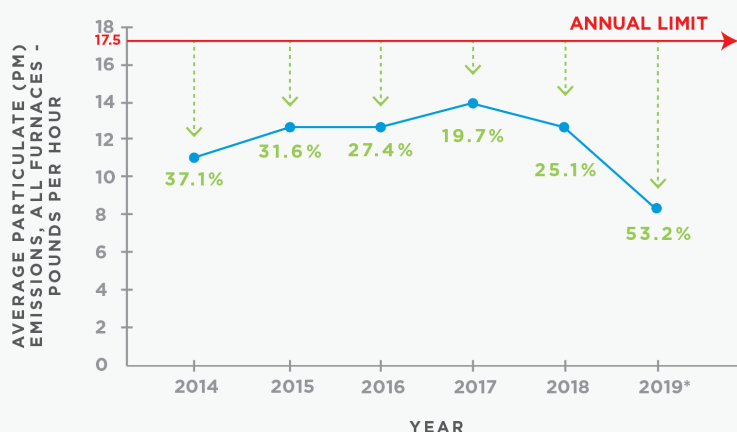
When Ardagh purchased the Seattle plant, the facility ran four furnaces. Its oldest and least efficient furnace, Furnace 2, began repeatedly failing stack tests for particulate emissions in November 2016. Workers did extensive cleaning inside the emission stack to remove built up scale that was contributing to the particulate emissions during stack tests. They also modified operational procedures and invested in new glass sampling equipment to reduce emissions and increase the accuracy of sampling. These measures enabled Ardagh to bring the problematic furnace into compliance.

But, in the interest of improving environmental conditions, along with increasing pressure from overseas imports, management made the difficult decision to shut down Furnace 2 in February 2019. It was a blow to the workforce, eliminating about 50 of the plant's approximately 400 jobs, but it was the right thing to do for both the business and air quality. Even with Furnace 2 out of compliance for most of 2017, overall plant emissions of particulate were nearly 20 percent below the overall permitted limit. As a result of shutting down Furnace 2, in 2019, the plant is estimated to release 53 percent less than the allowed amount of particulate under its operating permit ([See Chart 1](#)).

Chart 1: Plant-wide particulate emissions below permit limit

Despite more than a year of Furnace 2 compliance issues, overall particulate emissions for the plant have been 19 percent to 53 percent below permit limits.

**Average emissions are estimated starting in 2019, following the closure of Furnace 2 in February.*



PARTICULATE EMISSIONS

The Seattle plant also does better than required in terms of air emissions across the board, running well below permit limits for nitrogen oxides (See Chart 2) and sulfur dioxide (See Chart 3).

Setting the record straight on toxics

Recently, old mischaracterizations of the Seattle plant as a gross “toxic” polluter have re-emerged, focusing on the plant’s appearance on a former “watch list” of bad environmental actors maintained by the U.S. Environmental Protection Agency (EPA). EPA discontinued its watch list after determining it was not an effective approach for tracking important violators.²

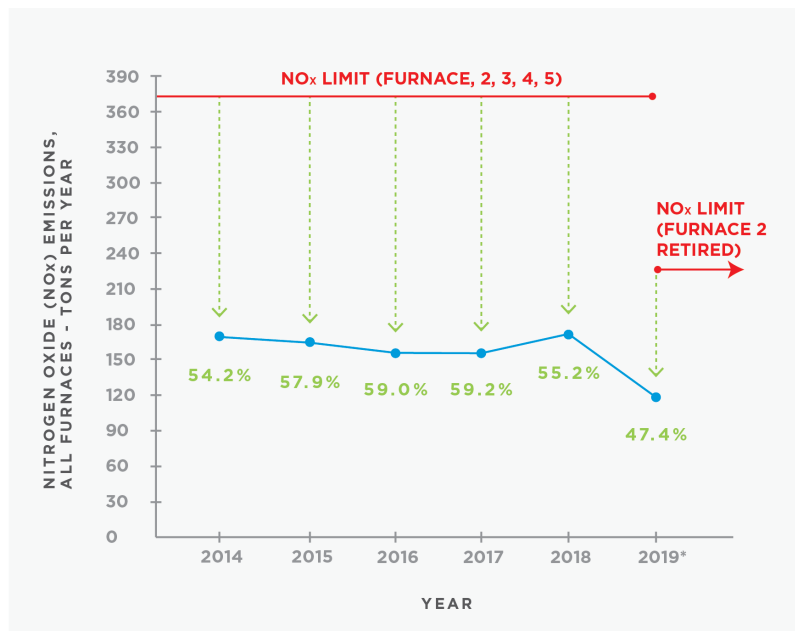
Although the plant was under different ownership at the time these concerns were initially raised, Ardagh believes it is in the public’s interest to clarify a key fact: Although regulators did assess a number of penalties — at high dollar amounts — against the plant’s previous owners for particulate emissions violations, the plant was not cited for the release of toxics.

Significant environmental enhancements to date

In addition to the significant environmental improvements resulting from shutting down Furnace 2, other efforts at the Seattle plant have benefited both air and water quality. The company has invested

Chart 2: Emissions of nitrogen oxides (NO_x) below limit

Emission limits are specific to each furnace. Aggregated, the limit for nitrogen oxides was 375 tons per year while Furnace 2 was in operation. Following the closure of Furnace 2, the overall aggregated limit was reduced to 226. Before Furnace 2 shut down, the plant was releasing nearly 60 percent less than the allowable amount. Even with tighter margins resulting from the lower limit, the estimated release of NO_x is about 47 percent below the limit.



*Average emissions are estimated starting in 2019, following the closure of Furnace 2 in February.

² 2014 memo from EPA administrator for the Office of Enforcement and Compliance Assurance Cynthia Giles to Inspector General Arthur A. Elkins Jr.

\$3.5 million in environmental enhancements since 2015. These investments include:

- Maintaining advanced environmental technologies on Furnace 5 that capture and recycle emissions, significantly reducing the release of airborne and stormwater pollutants;
- Hiring a full-time environmental engineer with 15 years of experience in environmental compliance at industrial facilities. Seattle is one of only two plants in Ardagh's North American portfolio with a dedicated environmental professional; and

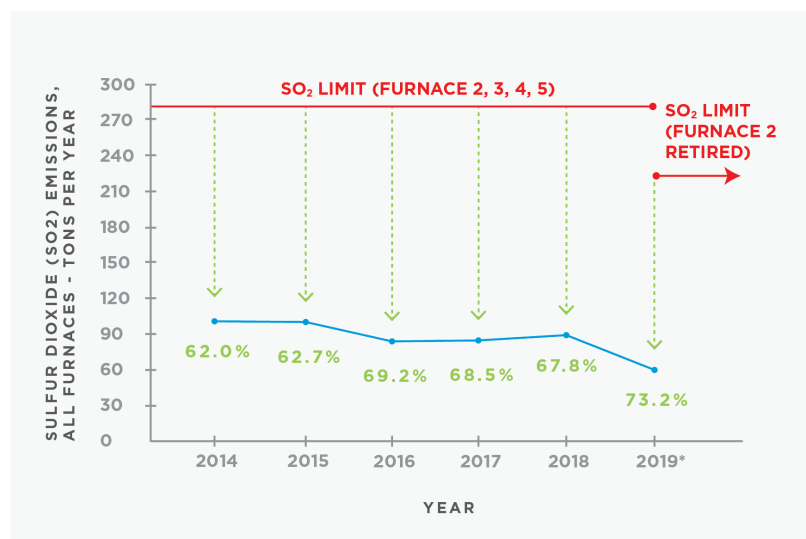
- Purchasing a street sweeper and hiring a full-time employee to run it eight hours a day to reduce pollutants in stormwater.

Some of these efforts were made in the interest of meeting lower air emission limits set out in a voluntary global consent decree that Ardagh has with the EPA and the states where Ardagh has manufacturing facilities. Ardagh is the only glass container company in North America to have such an agreement with the EPA.

Shortly after the effective date of the voluntary consent decree, Puget Sound Clean Air Agency sought

Chart 3: Sulfur dioxide (SO₂) emissions below limit

Emission limits are specific to each furnace. Aggregated, the limit for sulfur dioxide was 279 tons per year while Furnace 2 was in operation. Following the closure of Furnace 2, the overall aggregated limit was reduced to 220. Before Furnace 2 shut down, the plant was releasing nearly 70 percent less than the allowable amount. Following the closure of Furnace 2, the plant is estimated to release 73 percent less than the lower limit.



*Average emissions are estimated starting in 2019, following the closure of Furnace 2 in February.

— SO₂ EMISSIONS

to impose still lower limits through a Reasonably Available Control Technology (RACT) order. Ardagh opposed the order, citing the agreed upon limits of the consent decree that already applied to all of the company's North American plants. The state Pollution Control Hearings Board ruled that the proposed RACT would neither achieve its intended emission reductions nor were the costs of implementing the terms of the RACT reasonable. In essence, the control technology was not reasonably available or effective.

In addition to being the only glass container company in the nation to be part of a voluntary global consent decree, Ardagh also voluntarily signed up to be allocated a portion of cleanup responsibility for the lower Duwamish River federal Superfund cleanup site. By volunteering to take on a share of responsibility, the company feels it can contribute to improving conditions in an area where the community and regulators have already made a significant investment of time and funding.

Ardagh also has worked to continue environmental efforts that began prior to its ownership. The plant achieved the highly regarded 14001 certification from the International Organization for Standardization (ISO), an independent organization of industry experts. The ISO 14001 certification is only awarded to facilities with the highest quality environmental management systems. Ardagh has maintained its status in good standing.

Ardagh also contributes to reduced transportation emissions. Through negotiations with the four unions that represent more than 300 of the plant's 350 employees, bargaining agreements ensure shift changes take place outside peak commute hours.

This reduces congestion and the associated emissions from cars idling in traffic, caused by employees commuting to and from work.

Recycling for air and climate

Ardagh and its subtenant SMI are leaders in glass recycling in Seattle and King County. The combined operations use as much recycled glass as Seattle and King County's curbside pickup programs can supply. This relationship keeps 465 tons of glass out of landfills each day, and 170,000 tons of glass out of landfills each year.

For every 10 percent of recycled glass used in the manufacture of glass containers, energy use drops by 3 percent. This also reduces emissions of nitrogen oxides, sulfur dioxide and particulate. By using recycled glass, the Seattle plant is reducing greenhouse gas emissions from its processes by about 30 percent. In 2018, Ardagh was named Recycler of the Year by the Washington State Recycling Association.

Without Ardagh, major Pacific Northwest wine producers would be forced to buy their bottles from overseas (mainly China). These overseas facilities are not subject to the same environmental regulations and oversight, so their processes come with greater releases of air and water pollution, and global climate pollution. Additionally, imports would add to pollution from shipping bottles across the ocean.

More environmental protections planned

If successful in securing a renewed lease, Ardagh is committed to continuing to invest in the plant to reduce environmental impacts. The largest investment will be to rebuild its oldest remaining furnace,

Furnace 3, within five years of the renewal, rather than attempting to prolong the useful life of the furnace as is. The cost of approximately \$25 million includes more than \$10 million for advanced environmental technologies that capture and recycle emissions, significantly reducing the release of overall pollutants. This rebuild would go well beyond the company's environmental requirements of only replacing the furnace with the same technologies that are currently in use.

Ardagh also is exploring ways to further reduce its environmental impact, including the possible addition of a commute trip reduction program, and actively working with the Washington Department of

Ecology to consistently reduce stormwater runoff and associated pollution.

Ardagh is committed to achieving and maintaining a strong environmental record, and the company knows it must continue to work hard to do better than strict environmental standards set by permits – and be responsive to the community. Ardagh will continue to work cooperatively with regulators to maintain high standards, address any potential violations quickly, and continue to serve the Northwest with good-paying, family-wage jobs and high-quality glass bottles that support the region's important wine industry for many years to come.

Glossary of permit emissions

Particulate matter (PM): A mixture of solid particles and liquid droplets that are so small they can be inhaled deep into the lungs and may pass into the bloodstream. Sources of PM include diesel exhaust, fires and industrial emissions. Regulatory agencies set limits for industries' release of these pollutants and monitor ambient air quality to ensure the air meets state and national air quality standards for PM.

Nitrogen oxides (NO_x): Nitrogen dioxide (NO₂) is used as the indicator for the larger group of nitrogen oxides. NO₂ gets into the air primarily from burning fuel by cars, trucks, buses, power plants, off-road equipment and industrial emissions. Breathing air with a high concentration of NO₂ can irritate airways, especially for those

with respiratory diseases such as asthma. NO₂ and other NO_x react with chemicals in the air to form ozone, which is harmful when inhaled. Regulatory agencies set limits for industries' release of NO_x and monitor ambient air quality to ensure the air meets state and national air quality standards for ozone.

Sulfur dioxide (SO₂): The largest source of SO₂ in the atmosphere is burning fossil fuels by power plants and other industrial facilities. Other sources include volcanoes, locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content. Short-term exposure to SO₂ can harm the respiratory system and make breathing difficult. At high concentrations, SO₂ can harm trees and plants and contribute to acid rain.

SOURCE: U.S. Environmental Protection Agency